



Homeland
Security

MAY 19 2004

The Honorable Edward J. Markey
U.S. House of Representatives
Washington, DC 20515-2107

Dear Representative Markey:

On behalf of Secretary Ridge, thank you for your letter requesting the Department of Homeland Security look into issues raised by Professor Jerry Havens of the University of Arkansas regarding the vulnerability of liquefied natural gas (LNG) vessels to terrorist attacks.

On February 29, 2004, Professor Havens sent a letter to this Department expressing his concern that the insulation that encapsulates the cargo tanks on LNG carriers could be compromised in the event of an LNG release and subsequent fire. Professor Havens asserts that such an event could expose the cargo tanks to extreme temperatures, thereby elevating the vapor pressure in the tanks beyond the capacity of the tanks' relief valves, making the tanks vulnerable to rupture. Professor Havens raised additional concerns about the susceptibility of the vessel's hull and structural members to fracture when exposed to the cryogenic temperatures of liquefied natural gas.

Turning to your specific questions, you asked if LNG tankers are being equipped with double-layered insulating materials; that question was based on Professor Havens' observation that "fire resistant insulations are not routinely applied over the foamed plastic insulations that maintain the LNG cargo temperatures." The insulation on LNG carriers is a complex assembly of many layers. Each layer is tested for fire resistance, and its ability to stop the spread of a fire, before it can be used on LNG carriers in U.S. waters. Foam polystyrene insulation, cited by Professor Havens, is not used on LNG carriers precisely because it's susceptible to melting and deformation in a fire. You also asked about relief valve capacity. The relief valve capacity of LNG carriers is designed based upon exposure to fire.

Finally, you cited Professor Havens' concerns raised in a Lloyd's Register report prepared for Distrigas that leaks of LNG could lead to cracks and failure of the ship's hull. The potential that impingement by a cryogenic liquid could cause a brittle fracture of the ship's hull was well known to the Coast Guard in the mid- 1970s when the U.S. regulations for LNG carriers (Title 46 CFR Part 154) were being developed. Accordingly, U.S. regulations require the use of special crack-arresting steel in strategic locations throughout the vessel's hull. The U.S. regulations exceed the standards of the

International Maritime Organization's International Gas Carrier Code in this area, and all LNG carriers that call in the U.S. must comply with the U.S. standards.

Both the U.S. and international standards for LNG carriers were developed with the potential consequences posed by conventional maritime risks such as groundings, collisions and equipment failures in mind. It was assumed that many of these risks could affect cargo containment capability or result in fire; thus equipment, design and operational measures unique to these vessels have been developed to mitigate these consequences. Recognizing new risks now possible in our post 9/11 world, the United States and the international community have responded by implementing additional operational security measures under the Maritime Transportation Security Act (MTSA) of 2002, and the International Ship and Port Facility Security (ISPS) Code, respectively.

As you know, the Department of Energy has tasked Sandia National Laboratories with conducting a study that is looking into the vulnerability of LNG vessels to intentionally inflicted damages, which is expected to be completed later this Spring. The Coast Guard is assisting in this study. It is expected that this study will shed some additional light on the capacity of these vessels to withstand damages that could lead to the loss of significant cargo containment capability. The Coast Guard will evaluate the results of this study to determine if any changes are needed to current policies and regulations regarding safety and security measures currently employed for LNG vessels.

I appreciate your interest in the Department of Homeland Security, and I look forward to working with you on future homeland security issues. If I may be of further assistance, please contact the Office of Legislative Affairs at (202) 205-4412.

Sincerely,

A handwritten signature in cursive script, appearing to read "Pam Turner".

Pamela J. Turner
Assistant Secretary for Legislative Affairs